

SUPPORT FOR THE AMENDMENTS

The present amendment amends claims 1, 2 and 6, and adds new claims 15-21.

Support for the amendment to claims 1 and 6 is found at specification page 5, lines 24 and 25, as well as original claims 1 and 6.

Support for the amendment to claim 2, and newly added claims 20 and 21, is found at specification page 7, lines 21 and 22, page 16, lines 6-8, as well as original claim 2.

Support for newly added claims 15-18 is found at specification page 16, lines 32-35, page 17, lines 1-9, page 21, lines 1-7.

Support for newly added claim 19 is found at specification page 10, lines 12 and 13.

It is believed that these amendments have not resulted in the introduction of new matter.

REMARKS

Claims 1, 2 and 4-21 are currently pending in the present application. Claims 1, 2 and 6 have been amended, and new claims 15-21 have been added, by the present amendment.

The rejection of claims 1, 2, 4, 5 and 9-13 under 35 U.S.C. § 102(e) as being anticipated over Tauer (U.S. 2005/0159596) is respectfully traversed.

The present application is a 35 U.S.C. § 371 National Stage patent application of International patent application PCT/EP03/03538 (WO 03/084960), filed on April 4, 2003, which claims priority to German patent application DE 10214937.2, filed on April 4, 2002.

Tauer is a 35 U.S.C. § 371 National Stage patent application of International patent application PCT/EP03/01490 (WO 03/068779), filed on February 14, 2003, which claims priority to German patent application DE 10206366.4, filed on February 15, 2002.

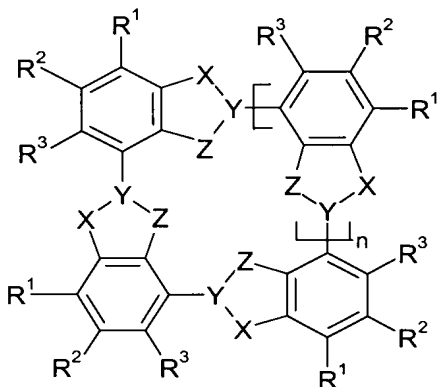
Applicants respectfully submit that neither Tauer, nor priority documents WO 03/068779 and DE 10206366.4, qualify as prior art under 35 U.S.C. §§ 102 or 103. Tauer, WO 03/068779 and DE 10206366.4 have a publication date of July 21, 2005, August 21, 2003, and August 28, 2003, respectively, and therefore do not qualify as prior art under 35 U.S.C. § 102(a) or (b). In addition, neither Tauer, nor WO 03/068779 qualify as prior art under 35 U.S.C. § 102(e)(1) since WO 03/068779 was published in a non-English language (See e.g., MPEP § 706.02(f)(1)(I)(C), Example 5 and III. Flowcharts). Furthermore, the filing date of DE 10206366.4 may not be used as a 102(e) date for prior art purposes (See e.g., MPEP § 706.02(f)(1)(I)(D)).

Applicants respectfully submit that a certified English translation of International patent application PCT/EP03/03538 (WO 03/084960) is not required since the present application is a 35 U.S.C. § 371 National Stage patent application, and thus an accurate English language equivalent thereof, as further evidenced by paragraph 6 of the enclosed letter to the U.S. Patent and Trademark Office submitted on October 4, 2004, as well as the enclosed internet publication indicating that WO 03/084960 is also published as U.S. 2005/0167637 (Application No. 10/509,944).

Withdrawal of this ground of rejection is respectfully requested.

The rejection of claims 1, 2, 4, 5 and 9-13 under 35 U.S.C. §§ 102(b) and/or 103(a) as being anticipated and/or obvious over Obermayer (U.S. Patent 5,180,821) is obviated by amendment, with respect to claims 1, 2 and 4-21.

Amended claim 1 recites, in part, a composition comprising a cyclic compound represented by formula (I):



wherein on average from 0.05 to 100% of R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> present in the cyclic compound are not hydrogen.

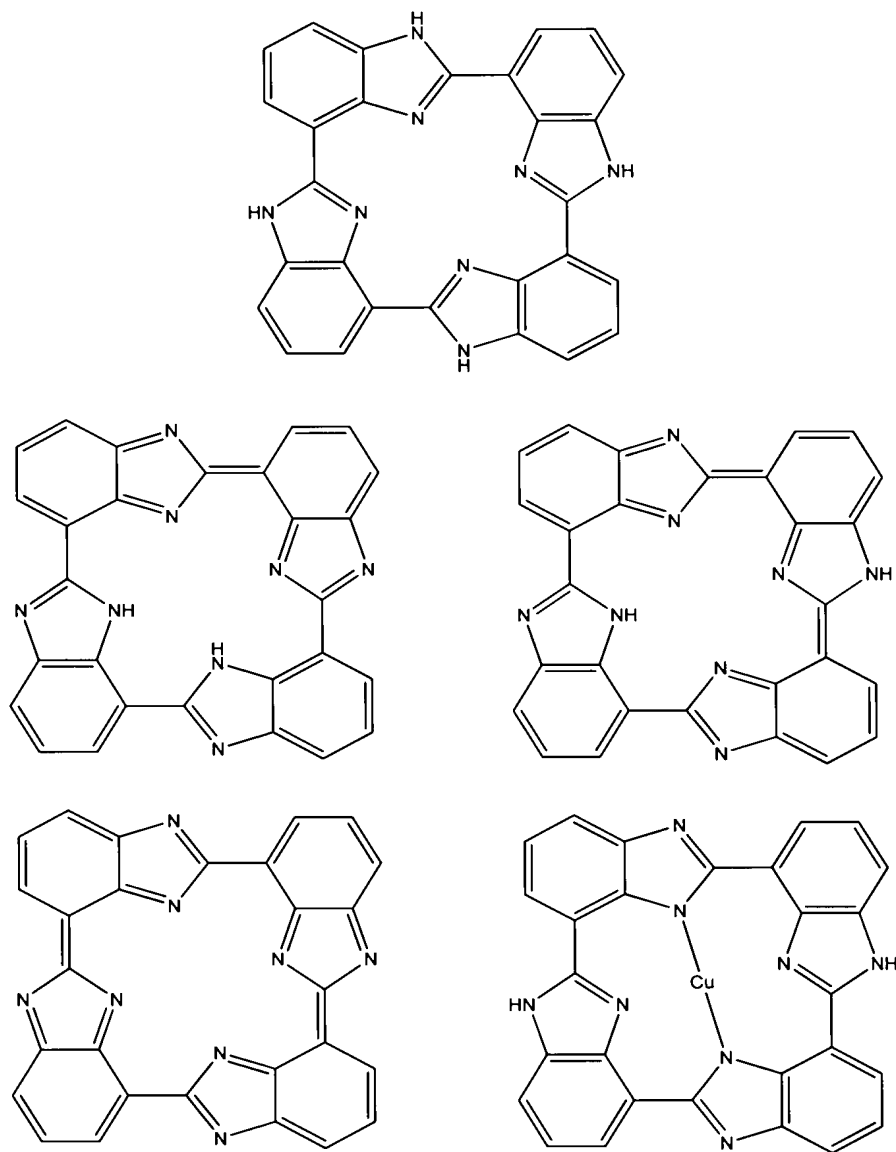
Amended claim 2 is directed to the composition according to claim 1, wherein on average from 0.01 to 12 of R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> present in the cyclic compound are not hydrogen.

New claim 20 is directed to the composition according to claim 1, wherein on average from 1 to 8 of R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> present in the cyclic compound are not hydrogen.

Amended claim 6 recites, in part, a cyclic compound represented by formula (I), wherein on average from 0.05 to 100% of R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> present in the cyclic compound are not hydrogen.

New claim 21 is directed to the cyclic compound according to claim 6, wherein on average from 1 to 8 of R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> present in the cyclic compound are not hydrogen.

Unlike the claimed invention, Obermayer describes cyclic tetrabenzimidazoles according to the following structural formulae (See e.g., abstract, column 1, lines 10-13, 43 and 44, Fig. 1, 2A, 2B, 3 and 4):



The claimed cyclic compounds according to formula (I) are fundamentally different from the cyclic tetrabenzimidazoles of Obermayer. Unlike the claimed cyclic compounds according to formula (I), wherein on average from 0.05 to 100% of the  $R^1$ ,  $R^2$  and  $R^3$  substituents present on the cyclic compounds are not hydrogen (claims 1 and 6), on average from 0.01 to 12 of the  $R^1$ ,  $R^2$  and  $R^3$  substituents present on the cyclic compounds are not hydrogen (claim 2), and on average from 1 to 8 of the  $R^1$ ,  $R^2$  and  $R^3$  substituents present on the cyclic compounds are not hydrogen (claims 20 and 21), the structural formulae of the cyclic tetrabenzimidazoles of Obermayer necessarily contain only hydrogen atoms on the aromatic benzene rings of the cyclic tetrabenzimidazoles.

The mere possibility that the aromatic benzene rings of the cyclic tetrabenzimidazoles of Obermayer could be substituted with at least one substituent that is not a hydrogen atom, as opposed to only hydrogen atoms as described in Obermayer, to arrive at the claimed cyclic compounds according to formula (I) is an insufficient ground for arriving at a supportable conclusion of unpatentability.

A *prima facie* case of obviousness requires that the prior art provide a skilled artisan with sufficient motivation and guidance to make the proposed molecular modifications needed to arrive at the claimed compounds. See e.g., MPEP § 2144.08(II)(A)(4), *Takeda v. Alphapharm*, 83 USPQ2d 1169, 1174 (Fed. Cir. 2007).

Obermayer merely describes substituting the aromatic benzene rings of the cyclic tetrabenzimidazoles with only hydrogen atoms. Accordingly, Obermayer necessarily fails to disclose or suggest substituting the aromatic benzene rings of the cyclic tetrabenzimidazoles with at least one substituent that is not a hydrogen atom, to arrive at the claimed cyclic compounds according to formula (I), thereby precluding a conclusion of obviousness.

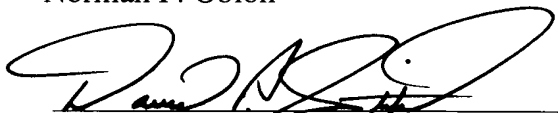
Withdrawal of this ground of rejection is respectfully requested.

Applicants respectfully request that the provisional obviousness-type double patenting rejection of claims 1, 2, 4, 5 and 9-13 over claims 10-17 of copending application number 10/503,587 (Tauer U.S. 2005/0159596) be withdrawn due to the abandonment of said copending application.

In conclusion, Applicants submit that the present application is now in condition for allowance and notification to this effect is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon



David P. Stitzel  
Attorney of Record  
Registration No. 44,360

Customer Number  
**22850**

# CYCLIC COMPOUNDS AND THE USE THEREOF AS LIGHT ABSORBERS, LIGHT EMITTERS, OR COMPLEX LIGANDS

**Publication number:** WO03084960

**Publication date:** 2003-10-16

**Inventor:** KOENEMANN MARTIN (DE); GESSNER THOMAS (DE); SENS RUEDIGER (DE); LENNARTZ CHRISTIAN (DE); SEYBOLD GUENTHER (DE)

**Applicant:** BASF AG (DE); KOENEMANN MARTIN (DE); GESSNER THOMAS (DE); SENS RUEDIGER (DE); LENNARTZ CHRISTIAN (DE); SEYBOLD GUENTHER (DE)

**Classification:**

- international:

**A61K8/00; A61K8/49; A61Q17/04; B01J31/02; B01J31/18; B01J31/22; C07B61/00; C07D487/22; C07D498/22; C07D513/22; C08K5/3417; C09B57/00; C09B67/46; C09D7/12; C09D201/00; C09K11/06; A61K8/00; A61K8/30; A61Q17/04; B01J31/02; B01J31/16; C07B61/00; C07D487/00; C07D498/00; C07D513/00; C08K5/00; C09B57/00; C09B67/00; C09D7/12; C09D201/00; C09K11/06; (IPC1-7): C07D487/22; A61K7/40; B01J31/02; C07D498/22; C07D513/22; C09B67/00; H01L51/30; C07D235/00; C07D257/00; C07D487/22; C07D235/00; C07D259/00; C07D487/22**






- European:

**C09B67/00P10B; A61K8/49; A61K8/49F1; A61Q17/04; B01J31/02E2; B01J31/18B2D2; C07D487/22; C07D498/22; C07D513/22**

**Application number:** WO2003EP03538 20030404




**Priority number(s):** DE20021014937 20020404

**Also published as:**

 EP1495025 (A1)  
 US2005167637 (A1)  
 EP1495025 (A0)  
 DE10214937 (A1)  
 AU2003232197 (A1)

more >>

**Cited documents:**

 US3481945  
 US5180821  
 XP002239393

**Report a data error here**

## Abstract of WO03084960

Disclosed is the use of cyclic compounds of general formula (1), in which n represents a number between 1 and 7, X-Y-Z independently represent O-C=N, N=C-O, NR<5>-C=N, N=C-NR<5>, N+R<5>2-C=N, N=C-N<+>R<5>2, O-C=N<+>R<5>, N<+>R<5>=C-O, S-C=N<+>R<5>, N<+>R<5>=C-S, S-C=N, N=C-S, or metal complexes of the cyclic compounds or complexes of the cyclic compounds comprising mineral acids, X<-> chloride, sulfate, hydrogen sulfate, phosphate, hydrogen phosphate, nitrate, BF4<sp>->, methanesulfonate being supplied as counterions in cationic cycles, as light absorbers, materials for hole-injection layers in OLEDs, light-emitting compounds in OLED, phase transfer catalysts, synergists for dispersing pigments or for optical data storage.

Data supplied from the **esp@cenet** database - Worldwide

259560US0PCT

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A SUBMISSION UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

10/509944

INTERNATIONAL APPLICATION NO.  
PCT/EP03/03538INTERNATIONAL FILING DATE  
4 April 2003PRIORITY DATE CLAIMED  
4 April 2002

## TITLE OF INVENTION

CYCLIC COMPOUNDS AND THEIR USE AS LIGHT ABSORBERS, LIGHT EMITTERS OR COMPLEX  
LIGANDS

## APPLICANT(S) FOR DO/EO/US

Martin KOENEMANN et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a submission under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a submission under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
  - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☒ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☒ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☒ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☐ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

## Items 13 to 23 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A power of attorney and/or change of address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 37 CFR 1.821 - 1.825.
20. ☐ A second copy of the published International Application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the International Application under 35 U.S.C. 154(d)(4).
22. ☐ Express Mail Label No.
23. ☒ Other items or information:

Application Data Sheet/Notice of Priority/Request for Consideration  
Article 34 Amended Sheets (Pages 58-63)  
PCT/IB/304/ PCT/IB/308